

## **Towards a cross-border hydrogeological model: harmonized data integration within the H3O-projects**

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The sustainable use and management of natural resources in border regions requires unambiguous geological information from neighbouring countries. However, the available data often lack compatibility and the same level of detail across borders.

Various stakeholders in the Netherlands and Flanders expressed their interest to harmonize the (hydro) geological models in the shared border region. Accordingly, the first H3O project was initiated in March 2012, focussing on the Roer Valley Graben across the Dutch-Flemish border. A second project (H3O-Campine area) set off in April 2015 and deals with the adjacent Campine area. Aim of these successive projects was (is) to produce cross-border, up-to-date, three-dimensional geological and hydrogeological models of the Cenozoic deposits. Existing (hydro) geological data (boreholes, well logs, seismic data, fault traces, geological maps and models) are collected, re-interpreted according to a harmonized lithostratigraphic scheme and fed into the 3D modelling process.

Results of the first H3O-Roer Valley Graben project include:

- A correlation scheme between Dutch and Belgian/Flemish (hydro) geological units;
- A consistent fault model of the Roer Valley Graben;
- Geometrically and stratigraphically consistent geological and hydrogeological models of the Cenozoic deposits in the Roer Valley Graben across the Dutch-Flemish border.

The resulting 3D models can be considered as a state-of-the-art reference for the subsurface structure of the project area and can be used as a base for cross-border management of natural resources. The correlation scheme serves as a guideline for present (H3O-Campine area) and future cross-border projects.

The H3O projects are carried out by a partnership between TNO – Geological Survey of the Netherlands, VITO and the Geological Survey of Belgium. The H3O models will be available in the public domain via the online data portals of DOV (Databank Ondergrond Vlaanderen) and DINOloket (Data en Informatie van de Nederlandse Ondergrond).